

SEQUENCE LISTING

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Cheo, David

<120> Compositions and Methods for Use in Recombinational
Cloning of Nucleic Acids

<130> 0942.4680003

<140> 09/517,466

<141> 2000-03-02


<150> US 60/122,389

<151> 1999-03-02

<150> US 60/126,049

<151> 1999-03-23

<150> US 60/136,744

<151> 1999-05-28

<160> 285

<170> PatentIn version 3.1

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cagtattatg tagtctgttt tttatgcaaa atctaattta atatattgtat atttatata
tttacgttt ctcgttcagc tttttgtac aaagttggca ttataaaaaaa gcattgctca
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tgctttctta taatgccaac tttgtacaag aaagctgaac gagaaacgta aaatgatata 120
aatatcaata tattaaatta gatttgcat aaaaaacaga ctacataata ctgtaaaaca 180
caacatatcc agtcactatg aatcaactac ttagatggta ttagtgacct gta 233

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cttgcacaaa gtgg 135

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<223> attL6

<400> 11 agcctgcttt tttatattaa gttggcatta 30

<210> 12

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<222> (25)..(25)
<223> n at the 3' end of the primer represents a target-specific sequence of any length

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<221> misc_feature

<222> (24)..(24)

<223> n at the 3' end of the primer represents a target-specific sequence of any length

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ccagctttct tgtacaaagt ggtn

24

<210> 17

<211> 23

<212> DNA

<213> Artificial Sequence

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<220>

<221> misc_feature

<222> (23)..(23)

<223> n at the 3' end of the primer represents a target-specific sequence of any length

<400> 17

cagctttctt gtacaaagtg gtn

23

<210> 18

<211> 22

<212> DNA

<213> Artificial Sequence

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<223> attB2(-4) Oligonucleotide Primer

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<222> (22)..(22)

<223> n at the 3' end of the primer represents a target-specific sequence of any length

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22

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<211> 26

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<221> misc_feature

<222> (26)..(26)

<223> n at the 3' end of the primer represents a target-specific sequence of any length

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acaagtttgt acaaaaaaggc aggctn

26

<210> 20

<211> 26

<212> DNA

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<221> misc_feature

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accactttgt acaagaaagc tgggtn 26

<210> 21
<211> 19
<212> DNA
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<222> (19)..(19)
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tgtacaaaaa agcaggctn 19

<210> 22
<211> 19
<212> DNA
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<222> (19)..(19)
<223> n at the 3' end of the primer represents a target-specific sequence of any length

<400> 22
tgtacaagaa agctgggt 19

<210> 23
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<222> (16)..(16)
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acaaaaaaaggc aggctn
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acaagaaaaggc tgggtt

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16

16

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<223> n at the 3' end of the primer represents a target-specific sequence of any length

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aaaaagcagg ctn

13

<210> 26

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agaaagctgg gtn

13

<210> 27

<211> 12

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<222> (12)..(12)

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aaaagcaggc tn

12

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gaaagctggg tn

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<222> (11)..(11)

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<400> 29 aaagcaggct n 11

<210> 30

<211> 11

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<221> misc_feature

<222> (11)..(11)

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<400> 30 aaagctgggt n 11

<210> 31

<211> 29

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<400> 31 ggggacaagt ttgtacaaaa aagcaggct 29

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ggggaccact ttgtacaaga aagctgggt

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<210> 33
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<222> (4)..(12)
<223> May be any nucleotide

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<222> (22)..(27)
<223> May be any nucleotide

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atgnnnnnnn nnttaactcga gnnnnnn

27

<210> 34
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<223> attB1 fused into a His6 fusion vector

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Met Ser Tyr Tyr His His His His His Gly Ile Thr Ser Leu Tyr
1 5 10 15

Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met
20 25 30

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<223> attB Amino Acid Sequence

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Gly Ile Thr Ser Leu Tyr Lys Lys Ala Gly Phe
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<210> 39

<211> 43

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<223> attR1 PCR Primer

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ggggacaagt ttgtacaaaa aagctgaacg agaaacgtaa aat 43

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<223> attr Right

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<212> DNA

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<223> B1-Hgb oligonucleotide

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ggggacaagt ttgtacaaaa aagcaggct 29

<210> 43

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<223> B2-Hgb oligonucleotide

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ggggaccact ttgtacaaga aagctggg 28

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tgtacaaaaaa agcaggct

18

<210> 45

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<223> 18B2-Hgb oligonucleotide

<400> 45

tgtacaagaa agctgggt

18

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<212> DNA

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<223> 15B1-Hgb oligonucleotide

<400> 46

acaaaaaaagc aggct

15

<210> 47

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<223> 15B2-Hgb oligonucleotide

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acaagaaaaggc tgggt

15

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<211> 12

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<400> 48
aaaaaggcagg ct

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<223> 12B2-Hgb oligonucleotide

<400> 49
agaaaaggctgg gt

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<210> 50

<211> 11

<212> DNA

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11

<210> 51

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<223> 11B2-Hgb oligonucleotide

<400> 51

gaaagctggg t

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<223> 10B1-Hgb oligonucleotide

<400> 52

aaagcaggct

10

<210> 53

<211> 10

<212> DNA

<213> Artificial Sequence

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<223> 10B2-Hgb oligonucleotide

<400> 53

aaagctgggt

10

<210> 54

<211> 29

<212> DNA

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ggggaccact ttgtacaaga aagctgggt

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gtcactagcc tgtggagcaa ga

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<223> -3' -Hgb oligonucleotide

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15

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<210> 74

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ggggagcctg ctttttaga ctaagttggc attataaaaa agcattgc

48

<210> 75

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<212> DNA

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ggggagcctg ctttttatac ctaagttggc attataaaaa agcattgc

48

<210> 76

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48

<210> 78

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ggggagcctg ctttttata ataagttggc attataaaaa agcattgc

48

<210> 79

<211> 48

<212> DNA

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<223> attLC7G PCR Primer

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48

<210> 81

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<223> attL8

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<223> attL14

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<223> attL15

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<210> 86

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<223> attL0

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30

<210> 87

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<223> attL5

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<223> attL6

<400> 88

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<223> Consensus sequence for integrase core-binding

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<223> attB0

<400> 93

tcaagttagt ataaaaaaagc aggct

25

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<223> attB2

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<223> attB2.2

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<221> gene

<222> (658) .. (757)

<223> attL2

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<223> ori

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<222> (655)..(754)

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<222> (877)..(1686)

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<222> (1791)..(2364)

<223> ori

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<222> (898) .. (1707)

<223> KmR

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<222> (1812) .. (2385)

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<222> (673) .. (772)

<223> attL2

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<222> (673) .. (772)

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<222> (1809) .. (2382)

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Ile Arg Tyr Arg Ile
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Pro Val Pro Asn

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Pro Val Pro Asn
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48

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Ser Gly Thr Glu Phe
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1 5 10 15

atc cgg tac cga att c 64
Ile Arg Tyr Arg Ile
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Ile Arg Tyr Arg Ile
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atc cgg tac cga att cgc 66

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Ile Arg Tyr Arg Ile
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48

cgg tac cga att cgc
Arg Tyr Arg Ile
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63

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Arg Tyr Arg Ile
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48

tca tgc atc gtc gac tgg atc cg^g tac cga att cgc
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84

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1 5 10 15

48

gac cta gtc gac tgg atc cgg tac cga att cgc
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1 5 10 15

aga tct gtc gac tgg atc cgg tac cga att cgc 81
Arg Ser Val Asp Trp Ile Arg Tyr Arg Ile
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<400> 213

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1 5 10 15

acc aat tca gtc gac tgg atc cg^g tac cga att cgc 84
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Leu Tyr Lys Lys Ala Gly Phe Glu Gly Asp Arg Thr Asn Ser Leu Arg
1 5 10 15

48

aaa tac tta acc atg gtc gac tgg atc cg^g tac cga att c
Lys Tyr Leu Thr Met Val Asp Trp Ile Arg Tyr Arg Ile
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88

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<223> pENTR11 multiple cloning site

<400> 219

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Lys Tyr Leu Thr Met Val Asp Trp Ile Arg Tyr Arg Ile
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<400> 220

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Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
1 5 10 15

49

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<212> PRT

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<400> 221

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<210> 222

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<213> Artificial Sequence

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60

aatttcacac aggaaacaga caggtatagg atcacaagtt tgtacaaaaa agctgaacga

120

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<221> CDS

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gagcgatcaa caatttcaca cagggaaacag acc atg tcg tac tac cat cac cat 114
Met Ser Tyr Tyr His His His His
1 5

cac cat cac ggc atc aca agt ttgtacaaaa aagctgaa 153
His His His Gly Ile Thr Ser
10

<210> 224

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<212> PRT

<213> Artificial Sequence

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<223> pDEST2

<400> 224

Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser
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<210> 225

<211> 153

<212> DNA

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gtgaaattgt gagcgataa caatttcaca cagaaacag tattc atg tcc cct ata 117
Met Ser Pro Ile
1

cta ggttatttggaa aaattaaggg ctttgtaaa ccc 153
Leu
5

<210> 226

<211> 5

<212> PRT

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<400> 226

Met Ser Pro Ile Leu
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<210> 227

<211> 102

<212> DNA

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Arg Gly Ser Arg Arg Ala Ser Val Gly Ser Pro Ser Thr Ser
1 5 10

ttg tac aaa aaa gctgaacgag aaacgtaaaa tgatataaat atcaatata 102
Leu Tyr Lys Lys
15

<210> 228

<211> 18

<212> PRT

<213> Artificial Sequence

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<223> pDEST3

<400> 228

Arg Gly Ser Arg Arg Ala Ser Val Gly Ser Pro Ser Thr Ser Leu Tyr
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Lys Lys

.

<210> 229

<211> 255

<212> DNA

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<220>

<221> CDS

<222> (97)..(246)

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tgtgagcgga taacaatttc acacaggaaa cagacc atg ggt cat cat cat cat 114
Met Gly His His His His
1 5

cat cac gat tac gat atc cca acg acc gaa aac ctg tat ttt cag ggc 162
His His Asp Tyr Asp Ile Pro Thr Thr Glu Asn Leu Tyr Phe Gln Gly
10 15 20

gcc cat atg agc gat aaa att att cac ctg act gac gac agt gat gac 210
Ala His Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Asp Asp
25 30 35

gat gac aag gta ccc atc aca agt ttg tac aaa aaa gctgaacga 255
Asp Asp Lys Val Pro Ile Thr Ser Leu Tyr Lys Lys
40 45 50

<210> 230

<211> 50

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST4

<400> 230

Met Gly His His His His His Asp Tyr Asp Ile Pro Thr Thr Glu
1 5 10 15

Asn Leu Tyr Phe Gln Gly Ala His Met Ser Asp Lys Ile Ile His Leu
20 25 30

Thr Asp Asp Ser Asp Asp Asp Lys Val Pro Ile Thr Ser Leu Tyr
35 40 45

Lys Lys
50

<210> 231

<211> 204

<212> DNA

<213> Artificial Sequence

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cactataggg aaagctggta cgcctgcagg taccggtccg gaattcccgg gtcgacgatc 180
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agaggatcca agcttacgta cgcgtgcata cgacgtcata gctcttctat agtgtcacct 120
aaattcaatt cactggccgt cgtttacaa cgtcgtgact gggaaaaccc tggcgttacc 180
caacttaatc gccttgcagc acat 204

<210> 233

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<223> pDEST6

<400> 233
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gtgacactat agaagagcta tgacgtcgca tgcacgcgtc cgtaagctt gatcctctag 120
agcggccgccc gactagtgtat cacaagtttacaaaaaaag ctgaacgaga aacgtaaaat 180

gatataaaata tcaatatatt aaat 204

<210> 234

<211> 255

<212> DNA

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<223> pDEST6

<400> 234
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cgccaattcc ggaccgggtac ctgcaggcgt accagcttc cctatagtga gtcgtattag 120
agcttggcgt aatcatggtc atagctgttt cctgtgtgaa attgttatcc gctcacaatt 180
ccacacaaca tacgagccgg aagcataaaag tgtaaagcct ggggtgccta atgagtgagc 240
taactcacat taatt 255

<210> 235

<211> 306

<212> DNA

<213> Artificial Sequence

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<223> pDEST7

<400> 235
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tttgtgaacc gtcagatcgc ctggagacgc catccacgct gtttgaccc ccatagaaga 120
caccgggacc gatccagcct ccggactcta gcctaggccg cggagcggat aacaatttca 180
cacagggaaac agctatgacc actaggcttt tgcaaaaagc tatttaggtg acactataga 240
aggtacgcct gcaggtaccg gtccggaatt cccatcacaa gtttgtacaa aaaagctgaa 300
cgagaa 306

<210> 236

<211> 204

<212> DNA

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<223> pDEST8

<400> 236
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taaataagta ttttactgtt ttgcgtacag ttttgcata aaaaaaccta taaatattcc 120
ggattattca taccgtcccc ccatcgccc cggtatcatca caagtttgta caaaaaaagct 180
gaacgagaaa cgtaaaatga tata 204

<210> 237

<211> 153

<212> DNA

<213> Artificial Sequence

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<223> pDEST9

<400> 237
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ggtccttagat tggtgcggtt atacacagaa ttctgattgg atcccggtcc gaagcgcgct 120
ttcccatcaa caagtttgta caaaaaaagct gaa 153

<210> 238

<211> 204

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<221> CDS

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<223>

<400> 238
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gattattcat accgtccccac catcgccgcg gatatctcggt ccgaaacc atg tcg tac 117
Met Ser Tyr
1
tac cat cac cat cac gat tac gat atc cca acg acc gaa aac 165
Tyr His His His His His Asp Tyr Asp Ile Pro Thr Thr Glu Asn
5 10 15
ctg tat ttt cag ggc atc aca agt ttg tac aaa aaa gct 204
Leu Tyr Phe Gln Gly Ile Thr Ser Leu Tyr Lys Lys
20 25 30

<210> 239

<211> 31

<212> PRT

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<223> pDEST10

<400> 239

Met Ser Tyr Tyr His His His His His His Asp Tyr Asp Ile Pro Thr 1 5 10 15
Thr Glu Asn Leu Tyr Phe Gln Gly Ile Thr Ser Leu Tyr Lys Lys 20 25 30

<210> 240

<211> 204

<212> DNA

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<223> pDEST11

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accgggaccg atccagcctc cgccggcccg aattcgagct cggtacccgg ggatcctcta 120
gagtcgaggt cgacggatc gataagcttg atatcaacaa gtttgtacaa aaaagctgaa 180

cgagaaaacgt aaaatgatat aaat 204

<210> 241

<211> 255

<212> DNA

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<223> pDEST12.2

<400> 241
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accgatccag cctccggact ctagcctagg ccgcggagcg gataacaatt tcacacagga 120
aacagctatg accattaggc ctggcaaaa agctatTTAG gtgacactat agaaggtaCG 180
cctgcaggtA ccggTccggA attcccatca acaagtttGT acaaaaaAGC tgaacgagaa 240
acgtAAAATG ATATA 255

<210> 242

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taaattcata taaaaaacat acagataacc atctgcggtg ataaattatc tctggcggtg 120
ttgacataaa taccactggc ggtgatactg agcacatcag caggacgcac tgaccaccat 180
gaaggtgacg ctctaaaaaa ttaagccctg aagaaggcA gcattcaaAG cagaaggctt 240
tggggtgtgt gatacgaaAC gaagcattgg gatcatcaca agtttgtaca aaaaAGCTGA 300

<210> 243

<211> 120

<212> DNA

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<223> pDEST14

<400> 243

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actcactata gggagaccac aacggttcc ctctagatca caagttgtt caaaaaagct 120

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<222> (106)..(120)

<223>

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ccctctagaa ataattttgt ttaactttaa gaaggagata tacat atg tcc cct ata 117
Met Ser Pro Ile
1

cta ggatttttggaa aaattaaggc ctttgccaa cccactcgac ttctttggaa 170
Leu
5

atatcttgaa gaaaaatatg aagagcattt gtat 204

<210> 245

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Met Ser Pro Ile Leu
1 5

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<400> 246
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cgtccatgg tcg aat caa aca agt ttg tac aaa aaa gct gaacgagaaa 109
Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1 5 10
cgtaaaatga tataaatatc aatatattaa attagatttt gcat 153

<210> 247

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Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1 5 10

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agaaaataatt ttgtttaact ttaagaagga gatatacat atg agc gat aaa 111
Met Ser Asp Lys
1
attattcacc tgactgacga cagtttgac acggatgtac tc 153

<210> 249
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Met Ser Asp Lys
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<210> 250

<211> 153

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<222> (82)..(123)

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aacctggccg gttctggttc t ggt gat gac gat gac aag atc aca agt ttg 111
Gly Asp Asp Asp Asp Lys Ile Thr Ser Leu
1 5 10

tac aaa aaa gct gaacgagaaa cgtaaaatga tataaatatc 153
Tyr Lys Lys Ala

<210> 251

<211> 14

<212> PRT

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<220>

<223> pDEST16 multiple cloning site

<400> 251

Gly Asp Asp Asp Asp Lys Ile Thr Ser Leu Tyr Lys Lys Ala
1 5 10

<210> 252

<211> 153

<212> DNA

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aattttgttt aactttaaga aggagatata cat atg tcg tac tac cat cac cat 114
Met Ser Tyr Tyr His His His
1 5
cac cat cac ctc gaa tca aca agt ttg tac aaa aaa gct 153
His His His Leu Glu Ser Thr Ser Leu Tyr Lys Lys Ala
10 15 20

<210> 253

<211> 20

<212> PRT

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<223> pDEST17 multiple cloning site

<400> 253

Met Ser Tyr Tyr His His His His His His Leu Glu Ser Thr Ser Leu
1 5 10 15
Tyr Lys Lys Ala
20

<210> 254

<211> 420

<212> DNA

<213> Artificial Sequence

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gtggttggct	acgtatcgag	caagaaaata	aaacgcca	cgcgttggag	tcttgtgtgc	180
tattttaca	aagattcaga	aatacgcatc	acttacaaca	agggggacta	tgaardattatg	240
cattttgagg	atgcgggac	ctttaattca	accacaca	atatattata	gttaaataag	300
aattatttat	caaatcattt	gtatattaat	taaaatacta	tactgtaaat	tacattttat	360
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<213> Artificial Sequence

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<223> pDEST19 39K Promoter

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aaaaaaaccgg	ccagtttctt	ccacaaactc	gcgcacggct	gtctcgtaaa	ctttgcgtc	120
gcaacaatcg	cgtgaccc	gtggtatgga	aatttttct	aaaaaaagtgt	cgttcatgtc	180
ggcggcggcg	ttcgcgctcc	ggtacgcgcg	acgggcacac	agcaggacag	ccttgcgg	240
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<211> 204

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<222> (163)..(174)

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gcaaataaat aagtatttta ctgtttcgt aacagtttg taataaaaaa acctataaat 120
attccggatt attcataaccg tcccaccatc gggcgccgat cc atg gcc cct ata 174
Met Ala Pro Ile
1
ctaggattt gaaaaattaa gggcatttg 204

<210> 257

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Met Ala Pro Ile
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<210> 258

<211> 95

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Ser Asp Leu Val Pro Arg His Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1           5                   10                  15

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48

qaacqaqaaa cgtaaaaatga tataaatatc aatatatattaa attagat

95

<210> 259

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<212> PRT

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<223> pDEST20 Polyhedron Promoter

<400> 259

Ser Asp Leu Val Pro Arg His Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1 5 10 15

<210> 260

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agcatacaat caactccaag cttgaagcaa gcctcctgaa ag atg aag cta ctg 174
Met Lys Leu Leu
1

tct tct atcgaacaag catgcgatat ttgc 204
Ser Ser
5

<210> 261

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<223> pDEST21 Promoter region

<400> 261

Met Lys Leu Leu Ser Ser
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<210> 262

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Val Ser Ser Arg Ser Asn

	1	5	
caa aca agt ttg tac aaa aaa gct gaacgagaaa cgtaaaaatga tata Gln Thr Ser Leu Tyr Lys Lys Ala 10			102
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aagcggaagg tctcgagcgg cgccaat 255

<210> 265

<211> 4

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<223> pDEST22 Promoter region

<400> 265

Met Pro Lys Lys
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<210> 266

<211> 82

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<222> (28)..(66)

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<400> 266 54

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Glu Gly Gly Ser Asn Gln Thr Ser Leu
1 5

tac aaa aaa gct gaacgagaaa cgtaaa 82

Tyr Lys Lys Ala
10

<210> 267

<211> 13

<212> PRT

<213> Artificial Sequence

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<400> 267

Glu Gly Gly Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1 5 10

<210> 268

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<212> DNA

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<223> pDEST23 T7 promoter

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<210> 269

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gct ttc ttg tac aaa gtg gtg att atg tcg tac tac cat cac cat cac 108

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Tyr Tyr His His His
1 5 10 15

cat cac ctc gat gag caa taactagcat aaccccttgg ggcctct 153
His His Leu Asp Glu Gln
20

<210> 270

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<212> PRT

<213> Artificial Sequence

<220> .

<223> pDEST23 T7 promoter

<400> 270

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Tyr Tyr His His His
1 5 10 15

His His Leu Asp Glu Gln .
20

<210> 271

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<212> DNA

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<223> pDEST24 T7 promoter

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Ala Phe Leu Tyr Lys Val Val Ile Met Ser
1 5 10
cct ata cta gggttatttggaa aaatthaaggg ccttgtgcaa cccactcgac tt 102
Pro Ile Leu

<210> 273
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> pDEST24 T7 promoter
<400> 273
Ala Phe Leu Tyr Lys Val Val Ile Met Ser Pro Ile Leu
1 5 10

<210> 274
<211> 102
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<220>
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<223> May be any nucleotide

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ctagatcaca agtttgtaca aaaaagctga acgagaaacg ta 102

<210> 275

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<221> CDS

<222> (19)..(60)

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<400> 275
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Ala Phe Leu Tyr Lys Val Val Ile Met Ser Asp
1 5 10
aaa att att cacctgactg acgacagtt tgacacggat gtactcaaag cg 102
Lys Ile Ile

<210> 276

<211> 14

<212> PRT

<213> Artificial Sequence

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<400> 276

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Asp Lys Ile Ile
1 5 10

<210> 277

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gcagagctcg tttagtgaac cgtagatcg cctggagacg ccatccacgc tgtttgacc 180
tccatagaag acaccgggac cgatccagcc tccggactct agcctaggcc gcggacc 237
atg gcg tac tac cat cac cat cac tct aga tca aca agt ttg 285
Met Ala Tyr Tyr His His His His His Ser Arg Ser Thr Ser Leu
1 5 10 15
1
tac aaa aaa gct gaacgagaa 306
Tyr Lys Lys Ala
20

<210> 278

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

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<400> 278

Met Ala Tyr Tyr His His His His His Ser Arg Ser Thr Ser Leu
1 5 10 15

Tyr Lys Lys Ala
20

<210> 279

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

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<223> May be any nucleotide

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tagcctaggc cgccggacc atg gcc cct ata cta gttatttggaa aaattaaggg 173
Met Ala Pro Ile Leu
1 5

ccttgtgcaa cccactcgac ttcttttggaa atatcttggaa gaaaaatatg aagagcat 233
gtatgagcgc gatgaaggatg at 255

<210> 280

<211> 5

<212> PRT

<213> Artificial Sequence

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<223> May be any nucleotide

<400> 280

Met Ala Pro Ile Leu
1 5

<210> 281

<211> 87

<212> DNA

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Val Pro Arg Ser Arg Ser
1 5

54

aca agt ttg tac aaa aaa gct gaacgagaaa cg
Thr Ser Leu Tyr Lys Lys Ala
10

87

<210> 282

<211> 13

<212> PRT

<213> Artificial Sequence

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<400> 282

Val Pro Arg Ser Arg Ser Thr Ser Leu Tyr Lys Lys Ala
1 5 10

<210> 283

<211> 405

<212> DNA

<213> Artificial Sequence

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<223> pEXP501

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acaatttcac acaggaaaca gctatgacca ttaggcctat ttaggtgaca ctatagaaca 180
agtttgtaca aaaaagcagg ctggtaaccgg tccggaattc ccggatatac gtcgacgagc 240
tcactagtcg gcggccgctc tagagtatcc ctcgaggggc ccaagcttac gcgtacccag 300
ctttcttgtt caaatgtggtc cctatagtga gtcgtattat aagctaggca ctggccgtcg 360
ttttacaacg tcgtgactgg gaaaactgct agcttggat ctttg 405

<210> 284

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<212> DNA

<213> Artificial Sequence

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<400> 284
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Met Ser Tyr Tyr His His His His His
1 5

cat cac ggc atc aca agt ttg tac aaa aaa gca ggc ttt gaa aac ctg 102
His His Gly Ile Thr Ser Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu
10 15 20

tat ttt caa gga acc atg gag aaa aaa atc act gga tat acc acc gtt 150
Tyr Phe Gln Gly Thr Met Glu Lys Lys Ile Thr Gly Tyr Thr Thr Val
25 30 35 40

gat 153
Asp

<210> 285

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> His6-CAT

<400> 285

Met Ser Tyr Tyr His His His His His Gly Ile Thr Ser Leu Tyr
1 5 10 15

Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met Glu Lys
20 25 30

Lys Ile Thr Gly Tyr Thr Thr Val Asp
35 40